Collaborative Approach to Stress Management Using Biofeedback Technology

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EDUCATION AND HUMAN ECOLOGY

BACKGROUND

- Employees and their adult dependents at OSU report feeling stressed, anxious and/or depressed
- Stress-related illness is expensive for employers, health plans, & employees[1]
- Work-site programs that promote coping skills and reduce stress can significantly reduce health care utilization[2]
- Stress management and emotional regulation are an essential part of an overall model of preventative healthcare and wellness[3]

PURPOSE

- Provide collaborative group experiential learning with multi-dimensional techniques
- Utilize traditional techniques of breath work, guided imagery, autogenic phrases, mindfulness and meditation
- Provide unique access to Heart Rate Variability biofeedback technology at the OSU Stress Management and Resiliency Training (S.M.A.R.T.) Lab
- Assess interest of OSU faculty and staff to offer future group health coaching programs that include the use of biofeedback technology to manage stress.

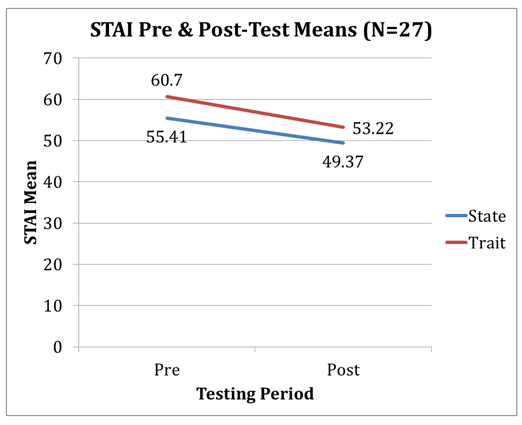
METHODS

- Two groups were recruited from OSU Faculty and Staff to participate in a group health coaching pilot program [in-person (n=16), webinar (n=14)]
- Sample: N=30 employees from OSU [Gender: Female (90%), Male (10%); Age: 19-39 (27.6%), 40-49 (37.9%), 50-69 (34.5%)]
- Paired samples repeated measures design with analysis between groups (live versus webinar) and within group (intervention pre- and post- scores)
- Group health coaching participants completed survey measures (State-Trait Anxiety Inventory and Brief Resilience Scale) pre and post-test
- Participants attended a 6-week live or a 6-week webinar relaxation skills group
- Additionally each participant was asked to complete a minimum of 4 individually scheduled Heart Rate Variability (HRV) biofeedback sessions at the OSU S.M.A.R.T. Lab. (HRV Coherence scores were recorded for each session)
- Participants also completed an electronic satisfaction survey (n=27)

RESULTS

State-Trait Anxiety

A repeated measures t-test was conducted to compare State stress scores and Trait stress scores on the State-Trait Anxiety Inventory (STAI) at Pre-test and Post-test.



There was a significant difference in the scores for State Anxiety at Pre-test (M=55.41, SD=12.10) and at Post-test (M= 49.70, SD=11.60) conditions; t (26)=2.72, p = .011.

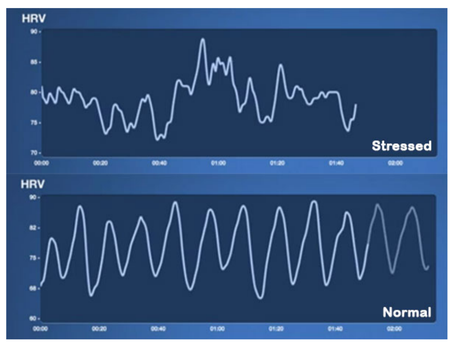
There was a significant difference in the scores for Trait Anxiety at Pre-test (M=60.70, SD=13.15) and at Post-test (M=53.22, SD=10.92) conditions; t (26)=4.39, p = .000.

These results suggest that participation in the group (live and web) had an effect of reducing state and trait anxiety.

There were no significant differences between the live and web based groups.

Heart Rate (HRV) and Resiliency

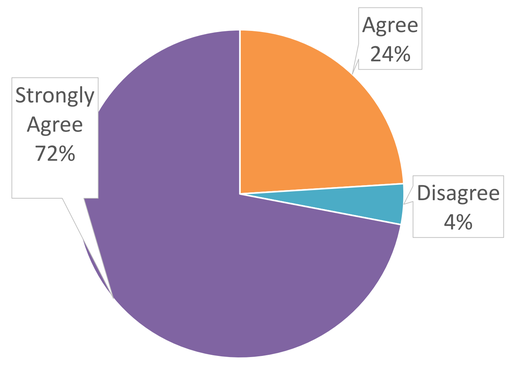
Participants reported feeling less stressed during the sessions. The HRV means slightly changed in the desired directions pre and post mean heart rate, normalized coherence (HRV); however, they were not significant.



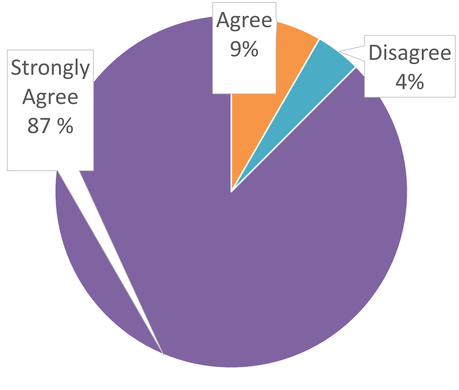
The resilience scores were not significant pre and post test. Trait anxiety was significantly negatively correlated with resiliency.

Satisfaction Survey

Practicing the techniques during the sessions helped me reduce my stress level.



I would use the S.M.A.R.T. Lab if available for OSU faculty and staff.



Participant feedback:

"I always felt calmer, more focused and truly better after each session"

"It really helped when I went back to work because it was so much easier then to really get things accomplished with none or very little stress"

"I find myself using the techniques I learned in the class and the S.M.A.R.T lab every day to make my life better"

"The SMART Lab does really great work and it is, by far, one of the best resources that I have found here. I would love to continue going there and I hope this program is able to continue"

DISCUSSION

- Results suggest that participation in the group health coaching series had a positive effect on reducing anxiety.
- Participants reported a strong interest in continuing to use the S.M.A.R.T. lab to reduce stress.
- Participants from both the in-person and webinar groups were able to apply the breathing techniques to daily situations outside the lab and group setting.
- Data from this pilot will support future collaborative opportunities for OSU faculty and staff to utilize the S.M.A.R.T. lab in conjunction with group health coaching.

ACKNOWLEDGMENTS

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- Thank you to the Office of Student Life for the opportunity to utilize the S.M.A.R.T Lab
- Thanks to the S.M.A.R.T. Lab staff and counseling faculty for helping to facilitate sessions

REFERENCES

1. Klatt, M. D., Buckworth, J., & Malarkey, W. B. (2009). Effects of low-dose mindfulness-based stress reduction (MBSR-ld) on working adults. Health Education & Behavior, 36(3), 601-614.
2. Rahe, R. H., Taylor, C. B., Tolles, R. L., Newhall, L. M., Veach, T. L., & Bryson, S. (2002). A novel stress and coping workplace program reduces illness and healthcare utilization. Psychosomatic Medicine, 64, 278-286.
3. Granello, P.F., (2013). Wellness Counseling. Prentice Hall, New York, N.Y.